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ABSTRACT

Students in career and technical education programs increasingly represent gender, racial, and cultural diversity. Students with disabilities from a wide range of backgrounds are entering the work force and career and technical education programs. This paper takes a critical look at equity issues in career and technical education. After a brief foreword providing context, the first chapter gives an overview of why career and technical education programs are important for women and girls, with an emphasis on nontraditional education and training along with the barriers faced by female students in career and technical education programs. The second chapter describes a legal framework for developing high-quality, just, and equitable career and technical education systems for individuals with disabilities. A discussion of equity issues involving race and ethnicity comprises the third chapter. Equity issues in career and technical education that face immigrants or those for whom English is a second language are addressed in chapter four. Contains 81 references. (SK)

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Equity Issues in Career and Technical Education

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Levon T. Esters
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edited by
Michael L. Scott

Information Series No. 390

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Equity Issues
in Career and Technical Education

Information Series No. 390

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Foreword

The Center on Education and Training for Employment would like to thank the authors and editor for their work in the preparation of this paper.

Michael L. Scott earned his baccalaureate, master's, and doctorate degrees from the Ohio State University. He was a consultant to the Ohio Department of Education for 4 years. He taught technology education and special education in the Columbus Public Schools and joined Ohio State's faculties of Technology Education and Special Education in 1981 where he currently holds joint faculty rank and teaches courses in Math/Science/Technology Education, Vocational Evaluation and Development, and Special Needs. From 1991-1995 he was the program coordinator for Technology Education Program Area. He also served on the Dean's staff as the College of Education's Coordinator of Minority Affairs during 1989-1991. Dr. Scott was the chairperson of the 1984 International Technology Education Association's annual conference held in Columbus, Ohio. Among his publications are the ***Special Needs Guide for Technology Education Programs*** and the 1984 "Outstanding Research Manuscript" of the ***Journal of Industrial Teacher Education*** (JITE). He has served as Assistant Editor of JITE, referee for the ***Journal of Technology Education*** and Associate Editor of ***The Directive Teacher***. Dr. Scott served as president of the National Association of Industrial and Technical Teacher Educators from 1989-1990. Dr. Scott was selected as a CIC Academic Leadership fellow for 1990-1991. He received the Rutherford E. Lockette Humanitarian Award (1995), the Award of Distinction (2000), and the Academy of Fellows Membership (2001) from the International Technology Education Association. He has served on the National Board for Professional Teaching Standards committee for Vocational and Technology Education.

Leslie T. Annexstein was a Senior Counsel at the National Women's Law Center. She participates in advocacy, litigation, and public education to enhance the legal protections provided by Title IX of the Education Amendments of 1972 in areas such as career education, sexual harassment, athletics, and standardized testing. Ms. Annexstein is currently the Vice Chair of the National Coalition for Women and Girls in Education and co-author of the NWLC publication, ***Putting the Law on Your Side: A Guide for Women and Girls to Equal Opportunity in Career Education and Job Training***. She was formerly an Attorney-Advisor to the Acting Chairman of the U.S. Equal Employment Opportunity Commission, a staff attorney at the Center for Law and Education, and a trial attorney in the Civil Rights Division at the U.S. Department of Justice. Ms. Annexstein is a graduate of the University of California at Berkeley, Boalt Hall School of Law, and Swarthmore College. She recently became the Director of the Legal Advocacy Fund at the American Association of University Women.

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Levon T. Esters is a Ph.D. candidate in the Department of Agricultural and Extension Education at the Pennsylvania State University where he has served as a graduate assistant and President of the Agricultural and Extension Education Graduate Student Association. He is the 2001-2003 Associate Editor of the ***Journal of Agricultural Education***. His dissertation research examined factors influencing the educational and career choice behaviors of agricultural education students. Other research interests include urban agricultural education program development and career decision making of agricultural education students.

Blannie E. Bowen has been professor and head of the Department of Agricultural and Extension Education since July 1998. From 1990-1992, he held the same positions on an interim basis. Prior to assuming his current administrative position, he was senior faculty mentor and associate dean of Penn State's Graduate School. Bowen has held the C. Lee Rumberger and Family Chair in Agricultural Sciences since joining the Penn State faculty in 1988. He is the 2001-2003 editor of the ***Journal of Agricultural Education***, the major research publication in his profession. Bowen's research focuses on the participation of African Americans in the agricultural sciences. In 2001, he presented the American Association for Agricultural Education's annual Distinguished Lecture. He has given many other invited lectures, including the Miller Lecture at Iowa State University. Bowen has received many honors and awards, including the H.O. Sargent Diversity Award presented by the National FFA organization.

Edward M. Reeve is a professor in the Department of Industrial Technology and Education at Utah State University. He received his Ph.D from the Ohio State University in Industrial Technology Education. His professional interests include developing curricula for technology and applied technology education and disseminating national standards related to technology education. Other professional interests include those related to developing competency-based education, internationalizing the curriculum, special needs in technology and applied technology education, and developing real-life learning experiences for the classroom. He has served as an American Council on Education Fellow and was a Fulbright Scholar in Thailand.

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Equity Issues in Career and Technical Education:

A Context

by Michael L. Scott
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The recent loss of Columbia from our space program reminded me of the strategic importance that diversity plays in the development of our country. The crew of Columbia represented men and women from different professional backgrounds, races, and nationalities. The expertise of this crew was as evident as its diversity. The same could be said about rescue workers in New York City on September 11, 2001 or U.S. armed forces protecting freedom in various parts of the world.

For some time now we have recognized the importance of diversity in career and technical education in our effort to develop a first-class work force. Compared to 2 or 3 decades ago, students in career and technical education programs increasingly represent gender, racial, and cultural diversity. Furthermore, students with disabilities from a wide range of backgrounds are entering the work force and respective career and technical education programs. Inextricably linked are diversity and equity. Although diversity has long been a premier goal of career and technical education, it cannot exist unless policies and practices are designed to enable access and equal participation in career and technical education training programs. Fairness and justice are essential when preparing individuals with diverse backgrounds for careers in various areas of our technological work force.

Instructors in career and technical education programs are facing challenges with the changing demographics to make their programs more relevant. Fundamentally, individuals need to get along with other individuals from various backgrounds and instructional strategies need to be culturally relevant. In some cases, new technologies, including assistive technologies, need to be employed to instruct persons with disabilities. Although the framework for such practices exists in legislative remedies such as Title IX of the Educational Amendments of 1972, the Carl D. Perkins Vocational and Technical Education Act, the Individuals with Disabilities Education Act, and the Americans with Disabilities Act, real change begins in the classroom. The classroom is a microcosm for the much larger society in which the work force rests. Moreover, our global economy has extended the work force into the international arena, making the equitable treatment of diverse workers of strategic importance.

In this monograph we take a critical look at equity issues in career and technical education. We have limited our discussions to issues as they relate to individuals with disabilities, gender, race and ethnicity, and individuals for whom English is a second language. In the first chapter, Leslie Annexstein provides an overview of why career and technical education programs are important for women and girls, with an emphasis on nontraditional education and training along with the barriers faced by female students in career and technical education programs. In our second chapter, Eileen Ordover provides a legal framework for developing high-quality, just and equitable career and technical education systems for individuals with disabilities. Ordover's work gives us a "road map" of how we operate within the laws of our land to ensure that the rights of persons with disabilities are preserved in the educative process. Levon Esters and Blannie Bowen provide a thoughtful discussion of equity issues involving race and ethnicity in our third chapter. Their work is particularly compelling in light of the changing demographics of our country. Finally, equity issues facing immigrants or those for whom English is a second language in career and technical education are addressed by Edward Reeve in chapter four.

The authors have provided extremely thoughtful and well-researched discussions relative to these topics. We sincerely hope that the discussions will be useful to you as you provide high-quality career and technical education programs for diverse populations in equitable and just ways.

Opening the Door to Career and Technical Education Programs for Women and Girls

by Leslie T. Annexstein
Senior Counsel
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Career and technical education programs can be the ticket to true economic independence. School reform efforts nationwide have embraced career education as a way to make learning more relevant for students and better prepare them for the workplace of the 21st century. School systems have revamped the vocational school model of the past to encompass learning about the latest technologies and are increasingly offering innovative programs such as career pathways and industry-sponsored certification programs.

However, the promise of these reforms and programs remains limited for female students. Biased career counseling and recruiting, sexual harassment, and differential treatment in the classroom all act to steer female students away from programs leading to careers that provide economic security. Young women remain clustered in areas such as child care and cosmetology whereas their male counterparts pursue areas such as automotive technology or electrical engineering, gaining access to high-technology training and the higher salaries that careers in these areas command.

The following sections discuss why career and technical education programs are important for women and girls, with emphasis on nontraditional education and training, the barriers faced by female students in nontraditional career and technical education programs, and two important federal laws that can be used to address and remedy gender inequities in these programs—Title IX of the Education Amendments of 1972 and the Carl D. Perkins Vocational and Technical Education Act.

Career and Technical Education Programs Are Important for Women and Girls

The nature of vocational education has undergone major changes to include a more comprehensive program of career and technical education that integrates academic and vocational programs with technology to teach students more of the skills that they need in an evolving workplace. Innovations such as "school-to-work" systems, career academies, and industry internships have brought about promising results, from lower dropout rates to higher achievement and higher grades, and increased postsecondary enrollment (Hughes, Bailey, and Mechur 2001). Further, career and technical education (CTE) has helped high school graduates achieve better employment rates, higher-paying jobs, and increased job satisfaction. A large degree of this success is likely due to students being able to understand more clearly the application of education to real-world jobs. A comprehensive exit survey of graduates of a Wisconsin Youth Apprenticeship program found that students in the programs became more interested in learning because they were inspired by their own work and could better see the connection between their current education and their future careers (Scholl and Smyth 2000a).

Staying in school is a key element in girls' ability to achieve high-wage employment. Female dropouts are much more likely to be unemployed: 44% of young women without a high school diploma are unemployed compared to 35% of young men (Milgram and Watkins 1994). Studies have provided evidence that career and technical programs have a positive effect on the dropout rate. Rasinski and Pedlow (1998) found that success in a vocational area may contribute to a new feeling of accomplishment and a desire to continue to succeed in that area. Further,

Plank (2001) demonstrated that after controlling for prior achievement, grades, and student background characteristics, the risk of dropping out is estimated to be at its lowest near the point at which a student completes three Carnegie units of CTE for every four units of academic subjects.

Career and technical education programs are also important for women because they can have a positive overall effect on students' performance in school and their desire to pursue higher education. High school seniors in New York's school-to-work program took more advanced science, mathematics, and computer science courses while maintaining grades comparable to those of their counterparts who were not involved in the program (Westchester Institute 1998). Career academies in California decreased the need for remedial English classes in college and increased the probability of their graduates attending and graduating from college (Maxwell and Rubin 2001).

Perhaps most important, when the training young women receive is in nontraditional fields, career and technical education can increase their employment opportunities and wages. Nontraditional occupations are defined by the U.S. Department of Labor as occupations "in which women comprise 25 percent or less of total employed" (Women's Bureau n.d.) Three of the five occupations that are projected to grow the fastest over 10 years are nontraditional for women: computer software engineers (applications), computer software engineers (systems software), and network and computer systems administrators (Bureau of Labor Statistics 1999). Women working in nontraditional fields typically earn 20-30 percent more than their counterparts in traditionally female fields, and female high school graduates who do not go on to college earn about 27% less than their male counterparts (Wider Opportunities for Women 1993). Thus, the type of training program that a female student enters is critical to determining the wages that she will earn in the workplace.

Women and girls who succeed in nontraditional areas may additionally benefit by achieving a greater sense of accomplishment and self-confidence as a result of disproving stereotyped notions of girls' capabilities. As reported by Hernandez-Gantes and Nieri (1996), girls in nontraditional areas often find great pride in having specialized knowledge typically reserved for boys: One female vocational student interviewed said, "It just really fascinated me. Because you take a piece of raw material and you turn it into something that can be used in a machine. I found it amazing that a lot of the guys not enrolled in the program could not relate to this and other things I have learned" (p. 88). Despite the advantages of nontraditional training, the vast majority of female career and technical education students explore careers from a narrower set of career options than male students.

Women and Girls Face Many Barriers in Career and Technical Education Programs

Women and girls continue to be underrepresented in many career and technical programs, particularly in technical and traditionally male fields. A study conducted by the National Women's Law Center (NWLC) in 2002 on enrollment patterns in various state career and technical education programs revealed that, for example, female students represent only 6% of students in plumber and electrician training courses, 7% of students enrolled in welding and carpentry courses, and 8% of students enrolled in automotive technology courses. In contrast, this study found that female students make up 96% of the students enrolled in cosmetology, 87% of the students enrolled in child care courses, and 86% of the students enrolled in courses that prepare them to be health assistants in every region in the country.

Other studies confirm that women and girls are much more likely to be found in vocational programs feeding traditionally female fields. A 1998 survey of 14 school-to-work sites found that more than 90% of girls were clustered in 5 sites that trained them for jobs in the traditionally female fields of health, teaching, graphic arts and office technology (American Association of University Women Education Foundation 1998). A study of Wisconsin's school-to-work programs revealed that female students were concentrated in just a few programs, with 81% of them enrolled in health or finance programs—as a result, female graduates of the school-to-work program earned, on average, $2 less per hour than their male peers did (Scholl and Smyth 2000b). At the postsecondary level, women are almost four times as likely as men to major in health fields and also more likely to major in business and office fields. In contrast, male students in associate degree programs are more than five times as likely to major in technical education and more than 14 times as likely to major in trade and industry programs (Levesque et al. 2000). This underrepresentation in nontraditional programs and clustering in traditional programs is directly linked to continuing barriers that female students face in pursuing nontraditional programs.

Persistent Sex Stereotypes and Sex Segregation in Programs Limit Career Options for Women and Girls

Sanogo (1995) identified many assumptions that are commonly held by educators and employers about women in the labor force. She found that women are discouraged from learning the skills required for high-wage jobs because of assumptions that they will leave the labor force for some time to have and raise children. Girls from families with low socioeconomic status may have a higher risk of being stereotyped than other girls: Billings (1992) found that girls whose parents had low socioeconomic status had higher sex-stereotyping scores than girls whose parents had high socioeconomic status, and a majority of career and technical students come from low socioeconomic backgrounds. By limiting options for women and girls, sex-role stereotyping helps perpetuate pervasive sex segregation in career and technical education programs.

Female Students Do Not Receive Adequate Counseling and Recruitment

Although career counseling should be designed to expose all students to a variety of career options and to help them achieve their goals, counseling programs in many schools may simply reinforce outmoded stereotypes regarding work. A recent report of the U.S. Commission on Civil Rights (2000) concluded that girls are still being steered away from math, science, and other technical fields. The report noted that the encouragement of teachers and counselors was "crucial." Other studies indicate that, by middle school, boys have a greater understanding than girls that new technologies including computers are changing the nature of jobs in the future (Riley 1993). Steering also extends beyond technology-related courses. A state department of education investigation in Maine (Hibino 1996) found that guidance counselors at a local middle school simply assumed that girls would not be interested in the traditionally male skilled trades offered by the vocational school because "young ladies don't like to do the dirty or heavy work" and as a result failed to encourage girls to consider enrolling in nontraditional programs and even actively discouraged girls who expressed interest in nontraditional programs. The 2002 NWLC study revealed that in Los Angeles, California, young women are frequently steered into cosmetology courses by their guidance counselors, who are reported to have consistently lower expectations of female students. In New York City, a vocational school that is 83% male displayed a large banner over its recruiting table stating that the school "Builds Mechanical Men," sending the message that its mission is to educate male students in mechanical fields (NWLC 2001).

Female Students Do Not Receive Equal Treatment in Programs and Face Sexual Harassment

Even when girls do enter nontraditional career and technical programs, anecdotal evidence suggests that they are treated differently and not provided with an equal opportunity to learn. A recent study found that 71% of male teachers believed that male students were more interested in the mechanics of computer technology and were more likely to attribute boys' success in technology to talent, while dismissing girls' success as due to luck or diligence (American Association of University Women Educational Foundation 2000). The 2002 NWLC study found that, in Chicago, young girls in a vocational shop reported that their teacher encouraged the male students to "learn by doing" while telling the female students to sit and study their textbooks, and, that, in one Massachusetts school, a teacher instructed a female student not to choose a vocational program in the trades because she would be taking a boy's spot (ibid.).

Some schools still lack adequate facilities for female students—a problem that dates back to the "male only" policies in effect for many years at many vocational schools. For example, when the state department of education investigated a vocational school in Connecticut in 1996, it found that the school had denied girls access to locker room facilities and the gymnasium, sending a clear message to the girls that they were second-class citizens (Hibino 1997).

Moreover, many teachers are not doing enough to guarantee a classroom atmosphere where all students can reach their full potential. A review of school-to-work initiatives found that "boys tended to dominate—almost to the point of exclusion—in many industrial and engineering programs" (Olson 1997, p. 236). Female students in nontraditional fields frequently state that girls have to be "tough" to make it in their classes and that they face resistance from their male classmates (National Center for Research in Vocational Education 1996; Silverman and Pritchard 1993). Recent studies of students working in groups on technology projects have found that boys tend to take over the more technically challenging tasks from their female peers (U.S. Commission on Civil Rights 2000). Such an atmosphere interferes with female students' ability to learn and discourages them from enrolling in these courses that can lead to high-wage careers.

Girls in nontraditional programs are few and far between, and the isolation they face may result in unequal treatment or harassment. One study showed that 75% of female nontraditional students found that being the only girl was difficult and that they were subjected to hostile environments from both teachers and male classmates (Sanogo 1995). Additionally, the interactive nature of many career education programs may allow more opportunities for harassment. For instance, female graphic arts students in a Pennsylvania vocational school were repeatedly sexually assaulted by male students in the class darkroom and in the unisex bathroom that they shared. Not only did the teacher fail to monitor the restroom or darkroom or to stop the repeated obscene language and gestures that occurred in the classroom, but when school officials found out about the assaults, they failed even to investigate [*D.R. v. Middle Bucks Area Vocational Technical School*, 972 F.2d 1364 (3rd Cir. 1992)].

Using the Law to Address and Remedy Gender Inequities in Career and Technical Education

Existing federal civil rights law requires schools to protect women's and girls' right to equal opportunity in career and technical education and includes some provisions that may promote student participation in nontraditional training and employment. Although they are not discussed here, many states also have laws prohibiting discrimination in education and employment, which may also be used to protect women's and girls' right to equal opportunity in career and technical education.

Title IX of the Education Amendments of 1972

Title IX of the Education Amendments of 1972 (sometimes referred to as the Patsy Takemoto Mink Equal Opportunity in Education Act) prohibits any federally funded education program or activity from engaging in sex discrimination. Title IX states:

> No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any education program or activity receiving Federal financial assistance. (20 U.S.C. § 1681)

This prohibition against sex discrimination is very broad and applies to most elementary and secondary schools, colleges, and universities. It also applies to education programs and activities receiving federal funds, regardless of whether they are affiliated with a school. Most career and technical education programs, or their sponsoring institutions, receive some form of federal assistance and are therefore covered by Title IX.

To help make Title IX's mandate a reality, the U.S. Department of Education issued regulations implementing Title IX in 1975, as well as guidelines explaining its application to career and technical education programs specifically (Office for Civil Rights 1979). Part of the factual basis for the implementation of the Vocational Education Guidelines was the pattern of sex segregation in vocational education that existed nationwide. The guidelines report that "male and female students were concentrated in programs traditionally identified as intended for them." The data cited indicate that in 1976 and 1977, female students made up 84.7% of the student body in programs that prepared them for low-wage careers, such as home economics, whereas male students made up 88.7% of programs identified as being "technical" in nature. The Title IX regulations and the Vocational Guidelines provide detail about what constitutes unlawful discrimination based on sex and set out affirmative steps that education agencies and programs must take to ensure that women and girls have equal opportunities in career and technical education programs.

Of particular importance to women and girls, the regulations and Vocational Guidelines make clear that programs may not discriminate in recruiting, career counseling, admissions, or treatment of students.

Recruitment and Promotional Materials. The regulations and guidelines make clear that the perpetuation of sex stereotypes violates the law and that recruitment methods must be nondiscriminatory. The Vocational Education Guidelines require schools to make affirmative efforts to include underrepresented groups in recruiting materials. Illustrations, photographs, or statements in recruiting materials may be considered in violation of Title IX if they would give a student the impression that only students of a certain sex are welcome in that program. Thus, if a CTE program uses recruiting materials that fail to depict women in nontraditional fields when it would be possible to use or create materials that do depict women in such fields, the program would not be complying with its obligations under Title IX.

Counseling and Appraisal Methods. The regulations also prohibit discrimination in guidance counseling, including counseling materials and methods. The Vocational Education Guidelines specifically require programs to "insure that their counseling materials and activities (including student program selection and career/employment selection), promotional, and recruitment efforts do not discriminate on the basis of…sex" and prohibit programs from "undertak[ing] promotional efforts in a manner that creates or perpetuates stereotypes or limitations based on… sex." Counseling that limits girls' options to choosing among programs that are traditionally female, or in any way steers girls towards traditionally female programs, would be in violation of Title IX.

Access to and Admission of Students to CTE Programs. Title IX prohibits a recipient from providing CTE courses and programs separately based on sex and prohibits discrimination in admissions to vocational programs. A program may not give preference to a person by ranking applicants separately based on sex, may not apply numerical limits based on sex, and may not treat any individual differently based on sex in the admissions process. Moreover, CTE programs may not administer or operate any test or other criterion for admission that has a disproportionately adverse effect on persons on the basis of sex, unless the use of the test or criterion is shown to validly predict success in the program and alternative tests or criteria, which do not have such a disproportionately adverse effect, are unavailable. However, programs can engage in affirmative steps to overcome the effects of conditions that result in limited participation by persons of a particular sex.

Treatment of Women and Girls. Significantly, Title IX's broad prohibition against sex discrimination includes sexual harassment of female students by peers, faculty, or third parties. Sexual harassment has the effect of deterring and preventing female students' access to nontraditional CTE programs. Sexual harassment includes unwanted physical touching of a sexual nature; unwelcome sexual comments or suggestions; unwanted requests for a date from a teacher; repeated and unwanted requests for a date from other students that interferes with the ability to get an education; insults or slurs based on sex; an atmosphere that is generally hostile to members of an individual's sex; hostile treatment because of an individual's sex; interference with the ability to work or study because of an individual's sex; and sexual assault or rape. To assist schools and programs in understanding their responsibility to address and remedy sexual harassment, the Office for Civil Rights (2001) has issued a policy guidance that provides important information regarding how schools and programs can comply with Title IX in this area.

Further, the Vocational Education Guidelines mandate that female students be provided with facilities, such as locker rooms, bathrooms, and changing rooms, comparable to those provided to male students. In determining whether a program is meeting this obligation, the number of facilities, as well as the location and accessibility of the facilities, must be considered. For example, not having female restrooms (or changing rooms) conveniently located to the automobile technology program may cause female students to miss important class time, affecting their overall ability to benefit from their education and possibly contributing to a hostile environment at the school.

Title IX also prohibits segregation of facilities that offer vocational programs and prohibits sex discrimination in employment that results in segregation of the student body by sex or exclusion or other discrimination against students. Indeed, if the vocational facility or program enrolls predominantly students of one sex, or there is an underrepresentation or overrepresentation of females on the staff of a vocational program, Title IX puts the burden on the program or education agency to demonstrate that this is not the result of sex discrimination.

To help ensure nondiscrimination, the law requires that programs take a variety of steps to prevent and address sex discrimination, including:

- Designating an employee coordinator to ensure Title IX compliance and investigate complaints of sex discrimination;
- Adopting and publishing grievance procedures that allow for prompt and equitable resolution
- Implementing and disseminating a policy that prohibits sex-based discrimination.

Further, the Vocational Guidelines specifically require state education agencies to adopt a compliance program to prevent, identify, and

remedy discrimination on the basis of sex in CTE programs, including collecting and analyzing relevant data and information and conducting periodic compliance reviews.

Title IX Enforcement: Case Studies

OCR Enforcement in New England. Although Title IX was enacted in 1972, there has been little federal government enforcement activity in applying the law to vocational education. In the few instances where the federal government has initiated investigations under Title IX, problems of sex discrimination have been identified. For example, between 1996 and 1998, the U.S. Department of Education's Office for Civil Rights initiated several Title IX compliance reviews in Connecticut, Maine, Massachusetts, and Rhode Island to examine whether girls had equal access to career and technical education programs. OCR's investigations found sex segregation by school and sex segregation in vocational programs within schools. Additionally, the investigations revealed instances of unequal treatment of female students, including peer harassment that was unremedied by school officials, unequal access to locker room facilities, the steering away of students from nontraditional fields, and recruiting materials that perpetuated sex stereotypes.

The schools entered into agreements with OCR to remedy the problems of sex discrimination. These agreements included a wide range of provisions, such as revising sexual harassment policies, training faculty on gender equity, assessing recruitment materials and making necessary revisions so that sex stereotyping was not perpetuated and modifying counseling methods to promote nontraditional training.

Subsequent evaluations of the impact of some of these agreements by OCR demonstrate that Title IX enforcement can lead to improvements in women's and girls' access to opportunities in vocational education. For example, in Connecticut, where OCR entered into an agreement with the Connecticut Regional Vocational-Technical System as a whole, the sexual harassment policy for the system was revised to conform to Title IX's requirements, and some of the schools saw an increase in female enrollment in the predominantly male courses such as drafting and carpentry.

Recent Requests for OCR Investigations. The NWLC's nationwide investigation of the extent of sex segregation in vocational and technical programs at the high school level in 2002 revealed pervasive sex segregation, sexual harassment in the classroom, discrimination in counseling and recruiting, and other gender-based bias. As a result, on June 6, 2002, the NWLC filed 12 Petitions for Compliance Review under Title IX with each of the regional offices of the Office for Civil Rights. The center requested that those federal offices conduct full investigations of the sex segregation in career and technical programs in specific states within, as well as throughout, their regions and remedy any problems of sex discrimination uncovered. The center also identified those states that have failed to designate a Title IX coordinator and requested that OCR take steps to ensure that those states come into compliance with the law and designate a Title IX coordinator.

The regional OCR offices responded to NWLC's Petitions in late January 2003 with virtually identical letters. OCR's response letters state that the office does not "undertake such compliance activities based upon statistical data alone" and therefore would instead "share" the information with the Vocational Education Methods of Administration coordinators in the appropriate states. In states where the NWLC had identified specific instances of discriminatory conduct, OCR requested that the NWLC supply additional information with respect to those allegations, such as the names of the high schools and the names of the students, without making a commitment about whether an investigation would be conducted.

Carl D. Perkins Vocational and Applied Technology Education Act

Beginning in the 1970s, Congress allocated funds through education legislation to help states eliminate gender inequities in vocational education. In 1976, Title II of the Education Amendments, which provided funds for vocational education, set aside $50,000 per state to fund a full-time employee, known as the sex equity coordinator, in each state department of education to coordinate efforts to overcome gender bias and stereotyping in vocational education. The law also specified that states could use a portion of their federal vocational education funds to support programs designed to help "displaced homemakers"—women who had previously been occupied as family caregivers in their homes—gain the skills necessary to reenter the paid work force. In 1984, Congress passed the Carl D. Perkins Vocational Education Act ("Perkins I"), which increased funding for the sex equity coordinator position to $60,000 and set aside 3.5% of federal vocational education funds for programs to foster gender equity in vocational education and 8.5% of the funds to provide services for single parents and displaced homemakers. In 1990, Congress reauthorized Perkins I as the Carl D. Perkins Vocational and Applied Technology Education Act ("Perkins II"), which required that 3% of federal vocational education funds be used for gender equity programs and 7% for programs to support single parents and displaced homemakers and allowed .5% to be used at the state's discretion for either of these programs. Under these provisions, programs were developed that provided a broad range of services, which included career guidance and counseling; child care, transportation and tuition assistance; mentoring; and job training, development, and placement (National Coalition for Women and Girls in Education 1995).

In 1998, Congress reauthorized the law again. "Perkins III" eliminated funding for and significantly reduced the number of provisions that would encourage gender equity or provide services for displaced homemakers and single parent students. This occurred in a general Congressional atmosphere favoring decreased federal regulations for educational programs. The gender equity provisions were among the provisions of the vocational education law that were the most hotly contested. Specifically, Perkins III, which remains in effect today, eliminated the set-aside funding for single parent, displaced homemaker and gender equity programs and eliminated the full-time state employee responsible for coordinating gender equity programs. An amendment proposed by Congresswoman Patsy T. Mink (D-HI), which would have restored these provisions, was narrowly defeated on the floor of the House of Representatives.

Perkins III does provide two potential funding streams aimed at supporting women and girls in vocational education: (1) states must reserve $60,000-$150,000 of "state leadership" funds to provide services to students pursuing nontraditional training and employment; and (2) states have the option of reserving 10% of the funds allocated for local educational agencies to be redistributed to local agencies based on certain criteria and may require the local agencies to use these funds to support programs for single parents, displaced homemakers, and students pursuing nontraditional training. Perkins III also requires states to report on student participation in and completion of vocational and technical education programs that lead to nontraditional training and employment. "Nontraditional training" is defined by the Perkins law as training for occupations in which the student's gender currently represents less than 25% of the work force.

Unfortunately, the implementation of the reporting requirement, touted as ensuring accountability by states in making progress toward equity for women and girls, has been problematic. States initially resisted the mandate and the benchmarks eventually set for states by the U.S. Department of Education were very low. Further, the Department of Education has aggregated the data from the states in broad occupational categories that mask the sex segregation in programs and artificially inflate the progress that states are making in preparing female students for nontraditional

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career opportunities. For example, the data collected by the federal government do not show enrollment patterns for specific programs such as cosmetology, child care, or carpentry. As a result, it is unclear whether this accountability provision has actually triggered the promotion of better opportunities for women and girls. The recently enacted Education Sciences Reform Act of 2002 requires the Department of Education to collect and disseminate data on student participation in and completion of secondary and postsecondary vocational and technical education programs by specific program area disaggregated by gender, race, ethnicity, disability as well as a number of other categories. Although data can be a powerful tool to help target problems, the Perkins III data reporting provisions did not provide a viable mechanism for addressing and remedying the continuing gender inequities in career and technical programs and it remains to be seen whether the Department of Education will implement the new collection requirements mandated by the Education Sciences Reform Act in a way that resolves this problem adequately.

To date, little research has been conducted on how these changes to the law have impacted women and girls. Some early outcomes, however, are documented in ***Invisible Again: The Impact of Changes in Federal Funding on Vocational Programs for Women and Girls***, released by the National Coalition for Women and Girls in Education in the fall of 2000. Their survey of gender equity programs nationwide revealed that funding for the programs has decreased since Perkins III took effect, with additional funding cuts predicted for the future; the ability to provide services to students had decreased; and essential student services, such as prevocational services, training, dependent care assistance, transportation assistance and tuition assistance are more scarce than they were before Perkins III took effect. Perkins III represents a tremendous setback for female students.

Conclusion

The pervasive sex segregation in career and technical education programs compromises the educational opportunities of and economic prospects for girls and women relegated to traditionally female training programs. Although laws such as Title IX have played an important role in opening the doors to nontraditional education for women and girls, evidence suggests that sex discrimination remains a major cause of the sex segregation and the disadvantages that result from it. These violations must be remedied immediately and OCR must live up to its statutory responsibilities and take the necessary steps to ensure that young women in the programs are provided with equal educational opportunities. States must designate Title IX coordinators and charge them with the responsibility to monitor and address sex discrimination in career and technical programs, and states and local education agencies must fulfill their own responsibilities under Title IX (and relevant state laws) to investigate, identify, and remedy discrimination. Title IX enforcement efforts must be stepped up to ensure that women and girls have full access to educational opportunities.

Further, Congress will soon take up the reauthorization of the Perkins law. With this reauthorization, Congress must consider seriously provisions to remove female students from their status as second-class citizens in our nation's career and technical education programs. Among other things, Congress should—

- Restore the full-time state sex-equity coordinator position so that there is a person responsible for CTE to work with the state Title IX coordinator to ensure nondiscrimination in the programs

- Provide funding to develop and support programs that promote exploration, enrollment, retention, and completion in education and training that lead to nontraditional and other high-skill/high-wageemployment

- Require the use of career guidance and counseling strategies that provide female students with full and complete information regarding career options that lead to high-skill/high-wage and nontraditional careers

- Require ongoing training and professional development of staff charged with preparing students for their educational and career choices to ensure that female students are provided comprehensive and unbiased information about their full range of options

- Require national-level research on the outcomes of women and girls in the programs

- Require states to develop systems that disaggregate student information by gender, race, age, disability, and participation in career and technical education programs by specific program area and report this to the federal government

Equity in High-Quality Programs:

The Combined Promise of the Civil Rights Laws and Perkins Act for High School Youth with Disabilities

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This chapter begins with a brief discussion of the current and historic inequities experienced by youth with disabilities within the public education system. It moves on to consider the legal responses to those inequities as found in major federal education and civil rights legislation. It then examines the implications and strategies for equity in program development and design, admission practices, and individual support that emerge from those laws.

What Does "Equity" Mean for Youth with Disabilities? Historical Context and Current Realities

For children and youth with disabilities, the quest for equitable participation in public education by necessity has always had two strands: getting in, and, once there, securing meaningful opportunities to learn what all other students are expected to know and be able to do. Indeed, the recognition that children with disabilities were routinely and systematically being denied both equal access to public education and high-quality education when permitted to enroll prompted the 1975 enactment of the federal special education law originally known as the Education for All Handicapped Children Act, and now called the Individuals with Disabilities Education Act (IDEA). Statistics compiled for Congress at the time revealed that, of 8 million children with disabilities in the United States, nearly 2 million were excluded from public schools, and more than 4 million were receiving an inappropriate education. Children of all ages and with a range of disabilities were affected.[1]

These two strands of discrimination—exclusion and inferior opportunities—characterized vocational education just as they did the broader public education system of which it was a part. Compliance reviews of vocational educational programs conducted from 1973-1978 by the Office for Civil Rights (OCR) of what was then the U.S. Department of Health, Education, and Welfare unearthed a pervasive pattern of civil rights violations, prompting OCR to issue in 1979 ***Guidelines for Eliminating Discrimination and Denial of Services on the Basis of Race, Color, National Origin, Sex and Handicap in Vocational Education Programs***. In regard to students with disabilities, OCR found that eligibility requirements often denied students vocational education opportunities on the basis of disability, students were often impermissibly assigned to separate programs, students were denied equal opportunities as a result of inaccessible facilities and poor evaluation procedures, and vocational education administrators often failed to protect students against discrimination by participating employers.[2]

Exclusion from public education because of disability has, of course, been recognized by the courts as unconstitutional for 30 years,[3] and what is now called IDEA has entitled all children with disabilities to a "free appropriate public education" for almost as long. Access to school, however, has not yet brought the quality of education that was as much the promise of the 1975 law as was entry to the school building. Today, students with disabilities experience high dropout rates, low graduation rates, and low rates of postsecondary education and employment relative to their peers without disabilities (see, e.g., Blackorby and Wagner 1996). In amending IDEA in 1997, Congress found that "implementation... has been impeded by low expectations, and an insufficient focus on applying...proven methods of teaching and learning for children with disabilities."[4]

In the realm of secondary career and technical education, data collected in the 1990s indicate that students with disabilities are taking vocational education courses in large numbers. The National Assessment of Vocational Education (NAVE) reported in its Final Report to Congress (Boesel and McFarland 1994) that students with disabilities were overrepresented in vocational education, and its 2002 Interim Report to Congress found a similar phenomenon (Silverberg et al. 2002). According to the 2002 report, in 1998 students with disabilities represented 2.8% of all high school graduates, but 4.2% of all occupa-

tional concentrators. In addition, students with disabilities were more likely to become concentrators than their nondisabled peers (37.5% versus 24.6%) and earned a higher share of their total credits in vocational education than did other students (23.5% versus 15.7%).

As the sobering record on graduation rates, dropout rates, and postsecondary outcomes demonstrates, however, issues of access cannot be divorced from issues regarding the quality of the programs to which access has been attained. It would appear from the NAVE statistics that students with disabilities are being afforded opportunities to take vocational education courses. However, little hard data are available concerning the quality of those opportunities, including whether students with disabilities are being supported in the high-quality career and technical education programs envisioned by reforms such as the Carl D. Perkins Vocational and Technical Education and School-to-Work Opportunities Acts—i.e., programs that (1) prepare students for careers and are designed to meet the same high academic standards set by the state for all students; (2) integrate occupational and academic learning, provide strong understanding and experience in all aspects of an industry, develop higher-order skills, and prepare students for postsecondary education; and (3) empower students to make career and life choices by giving them the flexibility and skills they will need to cope with labor market changes and technological change and to develop new education and career goals over time.

The NAVE 2002 Interim Report does note that students with disabilities are overrepresented in what the report terms "some of the more traditional vocational program areas—agriculture, construction, mechanics and repair, and materials production" (p. 48). Although "traditional program areas" does not necessarily equal traditional curricula and pedagogy, this finding does fuel concerns—rooted in the experiences of students, educators, parents, and advocates—that vocational course takers with disabilities are not necessarily participating in the innovative, high-quality career and technical education programs that the Perkins and School-to-Work Acts were intended to spur and are in danger of being left behind in programs of lesser quality.

Legal Responses to Disability-Based Inequities: Critical Provisions

The legal response to the inequities experienced by children and youth with disabilities in public education in general, and career and technical education in particular, has taken two main tacks. First, beginning in the early 1970s, Congress enacted and subsequently refined civil rights laws explicitly prohibiting disability discrimination in education programs (Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990) and requiring that public school systems not only enroll, but meet the unique needs of, all children with disabilities in the least restrictive educational environment appropriate in light of those needs (IDEA). Second, Congress has incorporated into its education reform legislation (including Title I of the Elementary and Secondary Education Act, the Perkins Act, and the now-sunset School-to-Work Opportunities Act) provisions designed to ensure the equitable participation in, and treatment of, students with disabilities.

Among these laws, Section 504, the ADA, IDEA, and the Perkins Act have the greatest potential for vindicating the right of students with disabilities to equitable participation in high quality career and technical education programs created for all students. The critical provisions of each are set out next, followed by a discussion of the strategies for equity that arise from their legal requirements.

Section 504 of the Rehabilitation Act of 1973

Section 504 states:

> [n]o otherwise qualified individual with a disability in the United States...shall, solely by reason of her or his disability, be excluded from participation in, be denied the benefit of, or be subject to discrimination under any program or activity receiving federal financial assistance...[5]

As virtually all state educational agencies, local school districts, public schools, and vocational schools receive federal funds, virtually all are required to comply with §504. So, too, are virtually all of the postsecondary institutions with which career and technical education programs for high school students may be linked.

U.S. Department of Education regulations implementing §504 provide further detail about what constitutes unlawful disability-based discrimination. The regulations include an extensive list of prohibited discriminatory practices, designed to ensure that youth with disabilities have an equal opportunity to gain the same benefits, obtain the same results, and reach the same level of achievement as their nondisabled peers. For example, career and technical education programs may not deny a qualified youth with a disability the opportunity to participate in and benefit from programs; provide qualified youth with disabilities opportunities to participate and benefit that are unequal to those offered their peers, benefits or services that are not as effective as those provided to their peers, or lower-quality programs than those provided their peers; or provide different or separate programs to youth with disabilities, unless the latter is necessary in order to deliver services that are as effective as what other youth receive. The §504 regulations also set out affirmative steps education agencies and programs must take to ensure that youth with disabilities receive full educational opportunity, requiring schools to evaluate the educational needs of youth with disabilities and to provide special education supports, related aids and services, and reasonable accommodations to those who need them.[6] The OCR Guidelines for Eliminating Discrimination in Vocational Education elaborate on these obligations.

Americans with Disabilities Act

The Americans with Disabilities Act is divided into five "Titles." Most relevant to public career and technical education programs is Title II, which prohibits discrimination by a "public entity" regardless of whether it receives federal funds. Title II thus covers state education agencies; school districts; public elementary and secondary schools; public technical schools, community colleges, 4-year colleges and universities; and any other government agency or unit involved in career and technical education programs.

Title II of the ADA protects only "qualified" individuals from discrimination, stating that—

> no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.[7]

A "qualified" individual with a disability under Title II of the ADA is someone who,

> with or without reasonable modifications to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity.[8]

Public entities thus must make "reasonable modifications," remove "barriers," and provide "auxiliary aids and services" as needed to enable an individual to meet "essential eligibility requirements," and so become a "qualified" individual with a disability.

As is the case with §504, the ADA is implemented by regulations that provide further detail about what constitutes unlawful discrimination. The Title II ADA regulations were modeled on the §504 regulations, and prohibit all of the discriminatory practices made illegal under §504[9]. In addition, they make explicit some obligations that are implicit in the older §504 regulations. For example, the ADA regulations state that public entities must make reasonable changes in their policies, practices and procedures when necessary to avoid disability discrimination (unless the changes would "fundamentally alter" the nature of the program in question) and may not use eligibility criteria that screen out or tend to screen out an individual with a disability, or individuals with a particular kind of disability, from full and equal participation in programs, unless the criteria are necessary to the program.[10]

Individuals with Disabilities Education Act

IDEA provides for federal aid to assist state and local education agencies in meeting the needs of children and youth with disabilities. In return, states and local school systems must comply with the detailed substantive and procedural requirements set forth in the statute and the regulations implementing it. These include providing to all IDEA-eligible students a "free appropriate public education" (FAPE) consisting of an appropriate elementary or secondary education that meets state standards, along with necessary special education and related services.[11] For purposes of IDEA, "special education" means "specially designed instruction...to meet the unique needs of a child with a disability," and includes instruction conducted in the classroom and in other setting."[12] "Specially designed instruction" means adapting the content, methodology, or delivery of instruction to (1) address the child's unique disability-related needs, and (2) enable the child to meet the standards imbedded in the regular education curriculum adopted for all students.

Under these definitions, "special education" is a package of instructional techniques and services. It is not a place, and not a separate school, class, or part of a building. Once instruction for a student has been tailored as required to address his or her needs it may, again depending upon the child's needs, be provided in a variety of settings—including a "regular" classroom. IDEA contains a presumption that students will fully participate in the "general," meaning regular, curriculum and be educated in regular classes alongside peers without disabilities, supported by appropriate services.[13] Schools must provide the supplementary aids and services students need for successful learning in integrated classes; exclusion is allowed only if a child cannot learn in the regular class even with these services.[14]

To facilitate the provision of FAPE, IDEA includes very specific requirements regarding education evaluations and individualized planning, including planning for the transition from high school to postsecondary life. These requirements are discussed later as they contribute to specific strategies for achieving equity for individual students in career and technical education programs.

Carl D. Perkins Vocational and Technical Education Act

The Perkins Act was rewritten in 1990 to reform the traditional approach to vocational education, which focused on preparing youth for a specific, narrowly defined job slot. The 1990 Perkins Act emphasized two related approaches: (1) integrating vocational and academic education so that students gain strong basic and advanced academic skills in a vocational setting, and (2) providing students with strong experience in and understanding of all aspects of the industry they are preparing to enter. The 1998 Perkins Act retained this emphasis and made explicit the requirement that students in vocational education programs be taught the same challenging academic proficiencies that all other students are taught.[15]

Perkins addresses the rights of students with disabilities through its provisions concerning "special populations."[16] Under these provisions, school systems receiving Perkins funds must provide students with disabilities equal access to Perkins-assisted activities and may not discrimi-

nate on the basis of disability.[17] In addition, Perkins recipients have explicit obligations to develop program strategies for students with disabilities; provide programs that prepare them for further learning and high-skill/ high-wage careers and are designed to enable them to meet the same levels of performance set for all students; and identify barriers that result in lowering rates of access or lowering success rates in vocational programs for students with disabilities and adopt strategies for overcoming them.[18]

Strategies for Equity

The legal responses sketched here have profound ramifications for the design and implementation of career and technical education programs on the state, school, and individual student levels. Taken together to mean what they say, these laws should be giving rise to systems in which youth with disabilities participate in high-quality, academically rigorous career and technical education programs alongside their peers who do not have disabilities, with the educational supports and accommodations they need to succeed and to master the bodies of knowledge and skills all students are expected to master. Paramount are the implications of these laws for program design and development, admission practices, and individualized assistance to students.

Equity in Program Design and Development

Planning for disability equity is an integral part of program design, evaluation, review, and improvement under the Perkins Act. The depth and breadth of the antidiscrimination requirements of section 504 and the ADA make effective compliance impossible unless the needs and rights of youth with disabilities are built into the design of the programs planned for all youth.

Under Perkins, for example, local plans—those submitted by local educational agencies, area vocational and technical schools, and certain other entities seeking Perkins funds—must describe how the recipient will review vocational and technical education programs and identify and adopt strategies to overcome barriers that result in lowering rates of access or success for students with disabilities, how it will provide programs that are designed to enable them to meet state levels of performance set for all students, and how individuals who are members of special populations will not be discriminated against.[19] Local recipients also must arrange for independent evaluation of their programs, continuously improve them, and develop and implement program evaluations that assess how the needs of students with disabilities are being met.[20] The state has similar equity-related program design responsibilities, including planning for how it will provide individuals with disabilities programs designed to prepare them for further learning and for high-skill/high-wage careers and for how they will be afforded equal access to all Perkins-funded activities, free from discrimination.[21]

Virtually all of the specific requirements of the §504 and ADA regulations and the OCR Guidelines have implications for program design, beginning with the definition of which youth with disabilities are protected by these laws. Under §504, a youth is "qualified" (for purposes of secondary educational services) if a nondisabled youth of his or her age may take part in such programs, or if state law or the federal Individuals with Disabilities Education Act entitles youth with disabilities of that age to public education.[22] "Qualified" youth under §504 must be provided with needed special education and related services.[23] Under Title II of the ADA, a "qualified" youth is anyone who meets the "essential eligibility requirements" of the program in question, "with or without reasonable modifications to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services."[24] Taking §504 and the ADA together, then, any youth who could participate in a career and technical education program with or without specialized instruction (special education), related services, other instructional supports, barrier removal, auxiliary aids, and services and reasonable accommodations is "qualified" to participate in that program free of

discrimination. Therefore, the number of youth who are not "qualified" to participate in the programs created for all students is very limited. Provisions for delivering specialized instruction, related services, other instructional supports, etc. to the vast majority who are "qualified" must necessarily be built into system and program design from the start.

The OCR Guidelines underscore this obligation, stressing that students may not be excluded from programs or courses because buildings or equipment are physically inaccessible to them, or because they need related aids and services or auxiliary aids. If necessary, the Guidelines explain, programs must modify instructional equipment, modify or adapt the manner in which instruction is provided, house the program in accessible facilities, and provide related aids and services that ensure an appropriate education.[25] Furthermore, state education agencies, school systems, schools and other recipients of federal money involved in career and technical education programs may not use a formula or other method of allocating funds that has the effect of discriminating on the basis of disability.[26] Budgets thus must be designed to allow sufficient money for the specialized instruction, related services, and other supports and accommodations necessary for equitable participation by youth with disabilities.

Perhaps the most profound implications for program design flowing from §504 and the ADA relate to the requirement that youth with disabilities be provided benefits and services comparable to those afforded nondisabled students. Career and technical education programs may not provide youth with disabilities opportunities to participate and benefit that are unequal to those offered their peers, or provide them with programs, benefits, or services that are not as effective as those provided to others.[27] To the contrary, youth with disabilities must be provided with services that give them an equal opportunity to gain the same benefits, obtain the same results, and reach the same level of achievement that other youth participating in a particular program attain.[28] This cannot happen unless youth with disabilities are treated as part of the core constituency during program development. Further, the §504 regulations and the ADA regulations both prohibit the use of administrative policies and techniques that, intentionally or not, result in discrimination. This ban includes methods that in effect defeat or undermine the education program's purpose for students with disabilities.[29] Avoiding these practices requires careful attention to the potential consequences of all planning and program design decisions.

The obligation to infuse equity into program development cannot be met by simply creating separate programs for students with disabilities, as both the §504 and the ADA regulations forbid different or separate programs unless "necessary" in order to deliver services that are as effective as those other youth receive, and it is unlawful to force a youth with a disability into a different or separate program if he or she could participate in the "regular" program.[30] If the wide array of legally required supports described earlier are made available, different or separate programs should rarely be necessary. In addition, the OCR Guidelines require that students with disabilities be placed in the regular vocational educational program to the maximum extent appropriate to individual student needs; a student may not be excluded unless the program demonstrates that he or she cannot learn satisfactorily there, even with special education supports, including supplementary aids and services.[31]

Equity in Admission Practices

The equity provisions of Perkins, §504, and the ADA mean that school systems must provide equal access to the full range of career and technical education programs and activities made available to other students, including allowing students with disabilities to enroll in each and every program within the school. Section 504 and the ADA address entrance criteria in a straightforward way. The OCR Guidelines ban the use of entrance criteria that discriminate on the basis of disability. The ban includes most criteria that disproportionately exclude students with a particular kind of disability, for example, emotional disturbance or a hearing impairment. An entrance standard that

has this kind of discriminatory effect may be used only if (1) it has been validated as essential to participation in the program, and (2) there is no alternative that does not disproportionately exclude.[32] The ADA regulations take a similar approach, prohibiting eligibility criteria that "screen out or tend to screen out an individual with a disability, or individuals with a particular kind of disability, from full and equal participation in programs, unless the criteria are necessary to the program."[33] These principles apply to all entrance criteria, including past academic performance, scores on standardized tests, and past conduct and discipline records.[34] In addition, both the §504 and the ADA regulations prohibit the use of "criteria or methods of administration" that, intentionally or not, result in discrimination, or defeat or undermine the education program's purpose for students with disabilities.[35] An unnecessary entrance standard that excludes students with disabilities from the high-quality educational opportunities designed for all students is just such an unlawful "criterion or method of administration."

The §504 and ADA requirements apply to work-based as well as school-based learning. When programs include off-campus work opportunities, they must ensure that the outside employer or other learning host abides by these rules when selecting students. The §504 and ADA regulations prohibit education programs from doing through contracts or other arrangements with third parties what the regulations prohibit education programs from doing themselves, directly.[36] Thus if an outside learning host discriminates, the program must convince its partner to comply with the law or end the relationship. The OCR Guidelines are even more explicit on this subject: each program must ensure that "(a) it does not discriminate against its students on the basis of...handicap in making available opportunities in cooperative education, work study and job placement programs; and (b) students...are not discriminated against by employers or prospective employers on the basis of...handicap in recruitment, hiring, placement, assignment to work tasks, hours of employment, levels of responsibility, and in pay."[37]

Equity in admission practices extends beyond the creation of general criteria meeting the standards discussed. Generally valid criteria may, as a legal matter, need to be modified for individual students on a case-by-case basis, in light of the student's particular needs and interests and the nature of the program in which he or she seeks to enroll. Under the ADA, programs must make reasonable changes in their policies, practices and procedures when necessary to avoid disability discrimination, unless the changes would "fundamentally alter" the nature of the program in question.[38] This includes admission policies, practices, and procedures. As discussed, programs also have independent obligations under §504 and the ADA to provide the specialized instruction, support services, auxiliary aids, modifications, and reasonable accommodations necessary to assist youth with disabilities in meeting the essential requirements for admission and participation.

Individual Support

If Perkins, Section 504, and the ADA require equitable participation in high-quality career and technical education programs created for all students, IDEA provides practical tools for achieving this for individual students. For example:

- The individualized educational evaluations and periodic reevaluations IDEA requires should be aligned with the skills and competencies to be taught and the instructional methods to be used in a student's choice of career and technical education program. Under IDEA, these evaluations must be designed to provide information about how the student's disability affects learning, the services and supports he or she will need to meet the expectations set for all students, and the supports staff will need to assist him or her in doing so.

- Individualized Education Programs (IEPs) should be designed in light of the program's content and desired outcomes. IEP goals and objectives should be keyed to mastering and

attaining them, and the specific educational services to be provided should include all those necessary to meet the goals and objectives and attain the high standards set for all students in the regular and career-technical education curriculum.

- Through IEP meetings, students, parents, and school staff can consider and provide for the full range of supports that may be called for, e.g., specialized instruction in the career and technical education program content, modification of the content of the curriculum or the manner in which it is delivered, supports for regular academic and occupational educators, equipment modification, or the provision of assistive technology.

- The individualized transition planning that IDEA requires beginning at age 14 (or earlier when appropriate) can be used to identify and provide any specialized assistance a student will need in order to meet essential admission criteria in the career and technical education program of his or her choice.

Conclusion

The Perkins Act mandates career and technical education programs of high-quality, designed, implemented, and refined to promote participation and success by youth with disabilities. Section §504 and the ADA establish a right to equitable participation in those high-quality programs created for all students with needed individualized supports and accommodations. IDEA affords processes and procedures for identifying and designing those individualized supports and accommodations. A legal framework for a high-quality, just and equitable career and technical education system exists. The tasks of building on that framework and vindicating the rights it recognizes remain.

Notes

1. S. Rep. No. 168, 94th Cong., 1st Sess. at 8 (1975).
2. See 44 Fed. Reg. 17163 (March 21, 1979).
3. Mills v. Bd. of Ed. of District of Columbia, 348 F. Supp. 866 (D.D.C. 1972).
4. 20 U.S.C. §1400(c)(4).
5. 29 U.S.C. §794(a).
6. See 34 C.F.R. §§104.33-104.35.
7. 42 U.S.C. §12132.
8. 42 U.S.C. §12131(2) (emphasis added).
9. See 28 C.F.R. §35.130(b).
10. 28 C.F.R. §35.130(b)(7), (8).
11. 20 U.S.C. §§1401(a)(8), 1412(a)(1), 1414(d)(1)(A)(vii).
12. 20 U.S.C. §1401(25).
13. 20 U.S.C. §§1412(a)(5), (17, 1414(b)(2), (c)(1)(B)(iv), (d)(1)(A)(i)-(iv), (d)(1)(B)(ii), (iv), (d)(4).
14. 20 U.S.C. §1412(a)(5); 34 C.F.R. §104.34(a).
15. 20 U.S.C. §2354(b)(3)(C).
16. 20 U.S.C. §2302(23).
17. 20 U.S.C. §§2342(c)(8)(A), (B), 2354(b)(8).
18. 20 U.S.C. §§2342(c)(7), (8) and §2354(b)(7).
19. 20 U.S.C. §2354(b)(7).
20. 20 U.S.C. §2355(b)(5).
21. 20 U.S.C. §2342(c).
22. 34 C.F.R. §104.3(k)(2).
23. 34 C.F.R. §104.33(b).
24. 42 U.S.C. §12131(2).
25. 34 C.F.R. part 100, App. B, ¶IV-N.
26. 34 C.F.R. part 100, App. B. ¶III-B.
27. 34 C.F.R. §104.4(b)(1)(ii), (iii); 28 C.F.R. §35.130(b)(1)(ii), (iii).
28. 34 C.F.R. §104.4(b)(2); 28 C.F.R. §35.130(b)(1)(iii).
29. 34 C.F.R. §104.4(b)(4); 28 C.F.R. §35.130(b)(3).
30. 34 C.F.R. §104.4(b)(1)(iv), (4); 28 C.F.R. §35.130(b)(1)(iv), (3).
31. 34 C.F.R. part 100, App. B. ¶VI-A. See also 34 C.F.R. §104.34(a); 28 C.F.R. §35.130(d).

32 34 C.F.R. part 100, App. B, ¶ IV-K.
33 28 C.F.R. §35.130(b)(8) (emphasis added).
34 34 C.F.R. part 100, App. B, ¶ IV-K.
35 34 C.F.R. §104.4(b)(4).
36 See 34 C.F.R. §104.4(b)(1), (4); 28 C.F.R. §35.130(b)(1), (3).
37 34 C.F.R. part 100, App. B, ¶ VII-A (emphasis added).
38 28 C.F.R. §35.130(b)(7).

Race and Ethnicity
Equity Issues

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Equity issues involving race and ethnicity are becoming increasingly common in career and technical education (CTE) as the racial and ethnic composition of U.S. society changes. Racial and ethnic minorities comprise 28% of the U.S. population (U.S. Bureau of the Census 2000a) and during the next 10 years, non-Hispanic whites are projected to constitute only 25% of the population growth. This reality means that CTE programs must continue to operate within a larger context and confront critical issues that emerge.

The quest to better serve America's emerging population must begin with the elimination of biases that CTE teachers, teacher educators, guidance counselors, and school administrators might have toward racial and ethnic minorities. A total commitment to equity in all CTE programs must be cultivated (Welter 1981). Such commitment is essential because embedded biases are expressed when educators have preconceived ideas about a race or gender that limit the acceptance or access of that group into professional programs and careers (Whent 1993). Such biases must be removed because many opportunities exist for ethnic minorities through CTE (Jennings 1991). This opportunity will not be realized, however, if challenges such as racial and ethnic bias are not resolved by the CTE community (Jennings 1991).

The major challenge CTE educators face is to develop a labor force through high-quality, accessible, and equitable education (Budke 1988; Lynch 2000). Any attempt to eliminate inequities and equalize enrollments in CTE programs must include strategies that create an awareness of the inequalities that exist in CTE (Welter 1981). Other essentials to creating equity include changing the attitudes of employers, potential students, and their families and friends, and the attitudes of other teachers in the educational system (ibid.). Given that employment opportunities will focus on service trades, low technology, and high technology, it is imperative that secondary and postsecondary institutions examine why negative attitudes exist and develop change strategies to address them (Illinois State Board of Education 1991).

With the advent of the 21st century, CTE in the United States is in transition (Levesque et al. 2000). Historically, the purpose of vocational education has been to prepare students for entry-level positions in occupations requiring less than a baccalaureate degree. Over the last 15 years, however, this purpose has shifted toward broader preparation that develops the academic, vocational, and technical skills of students in vocational education programs (ibid.). As the U.S. population becomes increasingly heterogeneous, a number of societal changes and issues are prompting the need for additional programs and activities that will result in more diverse career and technical education (Bowen and Jackson 1992). As such, one of the challenges for the CTE community is to ensure equity, access, and quality for an increasingly diverse clientele. This is essential because CTE plays an increasingly prominent role in the U.S. education system (National Association of State Directors of Career Technical Education Consortium 2001) and is a chief method by which society prepares for the future (Budke 1988). Although CTE courses and programs are administered in ways appropriate for each local school district with support from state and federal governments, issues related to racial and ethnic inequities still exist.

Issues of Racial and Ethnic Inequity

Examples of racial and ethnic inequity can be found in various components and levels of CTE. In this section, issues involving teacher education, enrollment trends, student tracking, and research are highlighted because of their significance.

Almost 90% of teacher educators are white, a statistic that has not changed for years (Bruening et al. 2001). Although minority students comprise 36% of the United States' K-12 student population, only 13% of K-12 teachers are minorities (ibid.). It is conceivable that more minority teacher educators can lead to the recruitment of more minorities into CTE teacher preparation programs (ibid.).

Earlier research indicates that teacher educators are concerned about equity in CTE and employment and are asking what can be done to promote equity (Welter 1981). For example, CTE has long been concerned about the low number of minority professionals within its ranks (Martinez 1991). Lankard (1994) states, "Although the numbers of minority students in U.S. schools continue to increase, at the same time, the number of minority teachers is expected to decline" (p. 1). The lack of minority teachers to be role models can have terrible consequences (Martinez 1991). This situation may contribute to the underachievement of minority students, provide little incentive for minority students to advance in school, and negatively affect their career and life aspirations (ibid.).

The multicultural classroom, which is relatively new to the U.S. educational system, creates unique demands for teachers who are aware of cultural differences within the student population (Lankard 1994). Students from ethnically and racially diverse backgrounds need the support of teachers from similar cultures who understand cultural and family practices and behaviors and who can serve as role models for educational achievement and success (ibid.). Increasing the number of minority teachers can lead to the recruitment of more minority students.

The lack of qualified teachers can also promote racial and ethnic inequities. Thus, CTE teachers must understand that it is necessary to deal effectively with students who are culturally different and especially with those who are educationally and economically deprived (Castellano, Stringfield, and Stone 2002; Proctor 1981). Friedenberg (1999) states, "Vocational and technology teacher education programs need to infuse into their curricula more demographic information concerning the problems and needs of Hispanics in the U.S." (p. 80). Future teachers should be made aware of positive relationships between CTE and school retention (ibid.). Also, future teachers need to learn ways to modify existing materials and techniques to better serve Hispanic students (ibid.). Friedenberg further contends, "Courses and textbooks in vocational special needs education must abandon the notion that special needs is synonymous with special education and do more to include in-depth material related to other populations of special students" (p. 80).

Teachers' stereotypic perceptions based on students' race, ethnicity, or socioeconomic status can negatively influence their academic behavior. For example, Guttmann and Bar-Tal (1982) indicated that teachers often have stereotypic perceptions that influence their evaluations and expectations. Their research revealed that when teachers are presented with information regarding students' ethnic origin, they respond in a stereotypic manner. Also, some teachers perceive students of Asian or African origin to have lower academic ability, less academic interest, less diligence, and worse home conditions than students of European-American origin. If indeed teachers differentially evaluate individuals based on gender, race, or ethnic origin, they perpetuate racial and ethnic inequities.

This occurs even though various pieces of federal legislation are concerned with the participation of special and protected populations in education programs (Levesque 2003). A report published by the National Center for Education Statistics examined the participation rates of public high school graduates in vocational-technical education between 1982 and 1998, focusing on the participation rates of graduates based on their special and protected population status. Several findings indicated differences based on race and ethnicity among high school graduates across vocational course-taking patterns. For example, a majority of all public high school graduates took some vocational-technical coursework in high school with 98% of African-Americans and Hispanics taking these types of courses. The 1998 graduates earned more than 2.6 vocational-technical credits on average—equivalent to taking more than two and a half full-year vocational-technical courses regardless of their special or protected population status (ibid.). Among the leading racial and ethnic groups were African-American and American Indian/Alaska Native graduates with an average of more than four credits in vocational-technical education. In addition, the percentage of high

school credits earned by graduates that were vocational-technical credits was more than 17% for African-American and American Indian graduates. Likewise, 68% of African-American and American Indian/Alaska Native public high school graduates earned three or more vocational-technical credits.

Another issue of racial and ethnic inequity involves tracking, a process whereby students are assigned to groups in various classes (Oakes 1985). Sometimes students are classified as fast, average, or slow learners based on their scores on achievement or ability tests (Oakes 1985). A large number of students who may not have the resources to attend a university, but have the ability to perform well in decent-paying jobs are tracked into a general high school program (Berryman, Flaxman, and Inger 1992). Such students are not provided the academic skills to attend a junior, community, and technical college, or the skills for an upwardly bound employment path (ibid.). A related problem of increasing concern is the need to prepare more young people to fill positions needed by a changing American economy (ibid.). Yet, Berryman et al. (1992) assert that tracking perpetuates the pervasive American problem of unequal educational and economic opportunity because a large proportion of these students are not white and middle class. Oakes (1985) indicated that "vocational courses are an integral part of the tracking system at most vocational schools" (p. 150). This is usually due to the separate sequence of courses that constitutes the vocational track. The vocational track courses are comprised of both vocational courses designed to prepare students to go directly from high school into the job market and academic courses required for graduation. Oakes further states:

> Although some vocational courses, especially in senior high schools, are seen as appropriate for all students in that they provide a general introduction to the world of work and careers, most of the students in the highest tracks do not take them. The college-bound students in the high track-track classes are usually so occupied with meeting college entrance requirements that they don't have room in their schedules for vocational courses. As a result, these courses are usually taught to fairly homogenous groups of students seen as low achieving or low ability. (p. 151)

Thus, the content of CTE programs is often shaped by what is seen as occupationally appropriate for the poor (Oakes 1985). The ineffectiveness of these programs may lie in both their limited content and inability to provide the attitudes and competencies that poor and minority students need to overcome race and class obstacles to occupational opportunity and social mobility (Oakes 1985). Not surprising, Oakes found marked differences in the CTE experiences of white and nonwhite secondary students. Specifically, more nonwhites than whites were being directed in their CTE training toward lower class social and economic positions. Based on the results of this research, Oakes (1981) indicated that, "Inequities exist in the educational experiences of many of the nonwhites taking vocational education" (p. 25).

Another area of inequity involves the lack of relevant research about minorities. As early as 1975, Sheppard stated, "The topic of research on ethnic minorities in vocational education [CTE] is one which is fraught with pros and cons and there are those who question the fact that there is such a thing as research that is relevant to one particular population as opposed to another" (p. 1). Sheppard contended that although ethnic minorities have much in common such as high degree of deprivation, discrimination, and disparity of educational opportunity, minorities for the most part have several differences. "What works for minorities in the design of vocational programs for some won't necessarily work for all" (ibid., p. 2).

This reality is more pronounced given today's demographics. For example, Wentling (2001) states, "Hispanics are expected to be the nation's largest minority group" (p. 3). As such, the potential for new CTE research within the Hispanic population should mirror issues specific to this group. For example, the role of CTE in

preventing Hispanic dropout warrants both the development of bilingual and multicultural CTE programs and the development of predictive instruments that might steer at-risk Hispanic students to these or other appropriate programs (Friedenberg 1999). Friedenberg further states, "It makes sense that future research and development efforts include the development and evaluation of bilingual/multicultural technology activities for elementary school children as a possible intervention for the high rates of dropout among Hispanic students" (p. 80). Also, Greer and Collard (1999) recommended that research be done on the relationship between social and academic factors that are perceived to improve the retention rates of women and African-Americans in college automotive technology programs. In addition to differences among ethnic minorities, Sheppard (1975) cites other problems associated with research in CTE. These include narrowly focused research (e.g., studies on urban Blacks), lack of impact research, lack of adequate funds for conducting major studies, considerable duplication of data, lack of substantial national data, and lack of comparison and criterion groups.

The impact of CTE on ethnic minorities is yet another area of concern for educators. Impact studies on the extent to which CTE programs improve employment opportunities for ethnic and racial minorities have produced mixed findings. One such study (Rivera-Batiz 1995) found that graduates of high schools with a CTE focus earn substantially less than individuals with similar characteristics who attend high schools with a college preparatory or general academic focus. Additionally, since graduates of CTE high schools tend to earn less than graduates of other high schools, and ethnic and racial minorities tend to be overrepresented in high school CTE programs, their low earnings have a disproportionate impact on minority populations.

Enhancing Racial and Ethnic Equity in CTE Programs

Enhancing racial and ethnic equity in CTE programs must be addressed using various strategies. For example, recruiting students from nontraditional backgrounds can be achieved by providing high-quality internship experiences that assist in the career development process. Fisher and Griggs (1995) explored personal, social, and institutional factors that facilitate the career development and choice of successful minority students. They found that internship experiences played a major role in helping students develop their interests and skills. Also, as recommended by Welter (1981), a different method is needed to encourage capable students from nontraditional backgrounds to enter CTE graduate programs. This is essential because higher numbers of graduate students will help in the recruitment and retention of other ethnic minorities who are also underrepresented in teacher education and leadership positions.

Greer and Collard (1999) outlined strategies that can assist in the recruitment and retention of minorities: continuing to contact high school CTE instructors and guidance counselors during recruitment activities, increasing the number of scholarships available to women and minorities, implementing mentoring programs, and reinforcing to faculty the importance of improving the retention rate of students in their classes. Another strategy involves providing extra help to nontraditional students (Welter 1981). Such students often need compensatory education because of academic deficiencies; however, allowing them to leave the program without achieving satisfactory competencies will only do teachers and their students a disservice and perpetuate biases and stereotypes (ibid.). To remedy the situation, CTE educators should conduct and encourage research to find answers to unresolved questions concerning education and employment. For example, CTE educators should collaborate with educators in disciplines such as psychology, anthropology, and sociology to conduct research

that provides the broadest possible perspectives on the problem and research procedures (ibid.). Finally, CTE educators should work with administrators and guidance counselors in school districts to develop strategies that promote equity in secondary and postsecondary CTE programs.

In a related vein, integrating academic education and CTE can increase equity. According to Berryman et al. (1992), integration helps offset stratification and discrimination in schools and the work force. It offers students who lack basic academic and higher-order thinking skills a meaningful education instead of relegation to low-track programs that compromise future options (as cited in Stasz 1992). Because the majority who are tracked are students of color, limited English speaking, and poor, integration eliminates stigmas that impede their ability to learn. Integration thus provides skills to help them compete with more advantaged applicants for positions (Berryman et al. 1992).

Even though various strategies can ensure equitable treatment of minorities, funding issues often create other barriers. Funding must be made available to conduct research and develop curricula needed to enhance the equity perceptions of teachers, administrators, and employers. Unless such funding is available to design research studies and expand programs, CTE educators will be limited in their capacity to cope with emerging equity issues.

These issues cannot be ignored given the United States' changing demographics. If students are to function effectively in an increasingly multicultural world, their education must prepare them for this challenge (Wentling 2001). Both CTE practitioners and their students must learn to deal successfully with differences in gender, age, race, class, and socioeconomic status (ibid.). Further, the rapid increase in the number of minorities will continue to be marked by an increasing diversity in terms of language differences and cultural beliefs (ibid.).

To enhance racial and ethnic equity, CTE programs must recruit not only diverse students but also diverse faculty (ibid.). Minority leaders are also needed to strengthen the teaching profession and its respective professional associations (Jeria and Roth 1992). Further, in order to reflect what is occurring in society, CTE leaders must bring different perspectives to their programs (Wentling 2001). CTE practitioners and other school personnel must promote racial and ethnic equity by building environments that heighten awareness, understanding, and appreciation of cultural and other differences among themselves and the student population (ibid.). Another critical step in the enhancement process must involve CTE practitioners establishing a communication network that promotes and involves individuals from different backgrounds in the CTE program's decision-making process (ibid.).

Enhancing Racial and Ethnic Equity in Teacher Education

Strategies to enhance racial and ethnic equity presented thus far have focused on CTE generally and CTE programs specifically. This section focuses on issues of enhancement in teacher education. CTE educators must provide students the most diverse and comprehensive education possible (Olmstead 1992). Also, CTE teachers must possess the capacity and experiences to deal effectively with students who are culturally different and especially with those who are educationally and economically deprived (Castellano et al. 2002; Proctor 1981). Using multicultural teaching strategies is one approach that can address issues inherent with culturally different students. For example, Jones, Womble, and Searcy (1997) found that "multicultural education has, in recent years, become an important focus for teachers, teacher educators, and administrators...One emphasis of multicultural education involves preparation for the work force" (p. 14). Since the workplace is becoming more diverse, students must be prepared to relate effectively to people of different cultural and ethnic backgrounds (ibid.). CTE educators must

also clarify their values with respect to issues of justice and fairness, and settle in their minds what moral obligation society has regarding equal opportunity for minorities (Proctor 1981).

Changing demographics and various economic and social shifts will continue to increase the diversity of the student population in colleges and universities (Erekson and Trautman 1995). Likewise, the racial and ethnic mixture in public schools will also increase as the number of minorities increases (Martinez 1991). Faced with this scenario, most CTE educators agree that there is a major need for more minority teachers, counselors, administrators, and teacher educators (ibid.). This need must be met because the lack of minority teachers to serve as powerful role models for students can have serious negative consequences (ibid.). This situation may contribute to the underachievement of minority students, provide limited incentive for minority students to advance in school, and negatively affect their career and life aspirations (ibid.). Jeria and Roth (1992) state, "The declining number of minority teachers is a serious threat to the social ideals of public schools in a racially and culturally diverse democracy" (p. 49). Further, the lack of minority role models can adversely affect the opportunity to enhance racial and ethnic equity through public schools.

While this situation is occurring, teacher education is experiencing lower enrollments, image problems, and a decreasing teaching force (Gray and Walter 2001). Among issues of concern to CTE is how to attract and retain minority CTE teachers (Lankard 1994; Shure 2001). If corrective actions are not implemented, problems associated with minority recruitment and retention might get worse (Jeria and Roth 1992). According to several studies, the number of minority teachers in CTE does not mirror the multicultural mix among students in CTE programs (Martinez 1991). Yet, Budke (1988) found that programs and strategies to recruit and retain minority students can significantly increase the number of minority CTE teachers. Martinez (1991) contends that there are three areas that support the need for minority teachers. First, the presence of minority teachers indicates to minority students that they can become teachers. If there are no minority teachers, however, the message may be that teaching is not a career option. Second, minority education role models break cultural barriers regarding the value of an education. By providing such role models, students may perceive that cultural barriers such as poverty, illiteracy, and social dependency can be conquered. Third, minority student attitudes toward learning, self-concept, and identification with their society can be positively influenced by minority teachers, counselors, and administrators.

Once such professionals are in CTE, efforts to retain minority CTE teachers should also include institutional commitment to multicultural understanding (Lankard 1994). Such commitment should include mentoring, role modeling, peer guidance, review, and counseling that enhance the intellectual and personal growth of minority faculty (ibid.). Finally, offering faculty development workshops, networking, and mentoring opportunities are additional retention strategies that may retain minority CTE educators. However, multiple strategies are needed because a singular approach will not meet the diverse needs of African-Americans, Hispanics, and Asians (Jeria and Roth 1992). Thus, the remainder of this section outlines strategies that can increase the pool of minority teachers to overcome barriers that prevent the enhancement of racial and ethnic equity.

Because teacher education programs typically have a profound influence over those who participate in CTE, teacher educators have the opportunity to help prospective and practicing teachers rethink their philosophies of equity (Welter 1981). Budke (1988) also indicated that new programs and approaches should prepare CTE teachers to meet the needs of special student populations. One strategy in this quest involves the redesign of teacher education programs. Proposed strategies include linking teacher educators with other groups, some outside of education, that have an interest in the education of CTE teachers (Welter 1981). Examples include business and industry representatives, secondary and CTE school personnel, and representatives of

professional associations and workers' unions. If teacher education programs are redesigned so these groups play significant roles in curriculum development and the creation of strategies to achieve equity, biases and stereotypes that create further inequities in CTE and employment will be addressed.

Another approach involves secondary teachers encouraging more minority students to consider CTE as a viable career option (Young 1991) because teachers are highly visible role models to students (Greer and Husk 1989). If CTE teachers serve as mentors for minority students and encourage them to become teachers, especially in the inner city, there will be a pipeline to help increase racial and ethnic equity. When classroom teachers demonstrate positive attitudes, those attitudes are transmitted to students (ibid.). Another option includes identifying and encouraging high school or college minority and female students who are interested in entering the profession (Erekson and Trautman 1995). These individuals can then be encouraged to pursue graduate programs to prepare for academic careers. Adapting recruitment efforts used in other disciplines can also be useful to CTE teacher educators. According to Erekson and Trautman, "women and minority faculty who have been prepared through programs in other fields not only bring new perspectives of diversity, but also perspectives from other professions and disciplines" (p. 93). Additionally, minority CTE teachers should be encouraged to actively pursue higher degrees and aspire to administrative positions (Martinez 1991). Having diverse individuals who play key roles in the decision-making process at the local, state, and national levels is critical when seeking equity.

Concluding Thoughts

It is imperative to identify initiatives to support the transition of minorities through CTE programs and into the workplace (Wentling and Waight 2000). To ensure that a more diverse population is prepared for the work force, the transition must be made smoother and more efficient (ibid.). Before educators can meet the needs of minorities, they must commit to a philosophy of equitable education (Welter 1981). This philosophy can be achieved by encouraging the CTE community to appreciate the importance of racial and ethnic diversity. The first step to achieve this philosophy begins with the reeducation of teacher educators and must build awareness and focus on the inclusion of all minority groups because CTE's long-term success depends on its capacity to address the needs of an increasingly diverse population (Wentling 2001). America's changing demographics demand no less from a publicly supported system of education.

English as a Second Language Students in Career and Technical Education

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The United States is still considered by many the greatest country in the world. It is a country that many look to for a better way of life for themselves and their families. People immigrate here from all around the world, from Antigua to Zambia, people come here for freedom, a chance to better themselves, and a place to offer their children a high-quality education.

Today, it is very common to have immigrants enrolling in career and technical education programs (CTE) and very often, these immigrants possess limited English skills. The purpose of this chapter is to provide career and technical education teachers information about the makeup of the immigrants coming into their programs, the educational laws pertaining to these immigrants, and the challenges that teachers may face with these students. The section also provides a brief review of the curriculum development process and an in-depth discussion on how to develop and deliver effective instruction for ESL students so that they are able to reach their fullest potential.

Who Are English as a Second Language Students?

The United States is a "melting pot" of immigrants who have come to this country for many reasons. They may come because of political turmoil in their own country, for economic reasons, or to be reunited with families who are already here (Peregoy and Boyle 2001). Whatever their reasons, immigrants come with their families and children and enrolling them in the nation's schools. It is these children, who have been raised in a non-English speaking environment, who are typically referred to as English as a Second Language (ESL) students. Other terms used to identify those beginning to learn English may include "limited English proficient" (LEP), a term that is used in federal legislation and other official documents; "English learners"; "nonnative English speakers"; and learners of "English for Speakers of Other Languages" (ESOL).

The U.S. Census provides good insight into Americans' current language skills. The 2000 Census Report (U.S. Bureau of the Census 2000b) examined the language spoken at home for the population aged 5 and older. The results show that approximately 82.1% of the population speaks English at home. This leaves 17.9% of the population (approximately 47 million people) who speak a language other than English at home. Of this group, 8.1% (approximately 21 million) indicated that they speak English less than "very well" at home. Further breakdown of the population shows the following groups who speak English less than "very well" at home:

- Spanish (13.7 million)
- Asian and Pacific Island languages (3.6 million)
- Other Indo-European languages (approximately 3.4 million)

Serving ESL Students in Career and Technical Education

ESL students enrolling in career and technical programs are considered "special needs" or "special populations" students and are entitled by law to participate in these programs. In 1984, Public Law (P.L.) 98-524 (The Carl D. Perkins Vocational Education Act of 1984) authorized federal funds to support vocational education programs and ensured that individuals with special needs who apply for vocational education assistance must be provided equal access to recruitment, enrollment, and placement. One of the goals of the Perkins Act was to improve the access of those who either have been underserved in the past or who have greater-than-average educational needs. Under the act, special needs students include those who have a disability, are disadvantaged, or have limited English proficiency (National Information Center for Children and Youth with Disabilities 1996).

In 1990 and 1991, Congress amended this law by passing P.L. 101-392 and P.L. 102-103, respectively, and its name was changed to the Carl D. Perkins Vocational and Applied Technology Education Act. This law concentrated resources on improving educational programs leading to the academic and occupational skill competencies needed to work in a technologically advanced society. The law expands the term "special populations" to include individuals with disabilities, individuals who are economically and educationally disadvantaged (including foster children), individuals with limited English proficiency, individuals who participate in programs to eliminate sex bias, and those in correctional institutions (ibid.).

In 1998, the Carl D. Perkins Vocational-Technical Education Act Amendments (P.L. 105-332) were signed into law with the purpose of creating a new vision for vocational and technical education in the 21st century. Again, this law addresses the needs of individuals with limited English proficiency and notes, "the term 'individual with limited English proficiency' means a secondary school student, an adult, or an out-of-school youth, who has limited ability in speaking, reading, writing, or understanding the English language, and (A) whose native language is a language other than English; or (B) who lives in a family or community environment in which a language other than English is the dominant language" (U.S. Congress 1998, p. 112, STAT. 3079-3080).

Challenges of Working with ESL Students

In some situations, ESL students may present a teaching challenge for career and technical education teachers. For this paper, a short two-part survey was conducted and given to a group of practicing CTE teachers and support personnel (n=25) at a local Job Corps Center located in Utah. Job Corps is the nation's largest and most comprehensive residential, education, and job training program for at-risk youth, ages 16-24. Since 1964, Job Corps has provided more than 2 million disadvantaged young people with the integrated academic, vocational, and social skills training they need to gain independence and get high-quality, long-term jobs or further their education (U.S. Department of Labor, n.d.).

In this survey, Job Corps CTE teachers and support personnel were asked about their experiences working with ESL students. In the first part of this survey, teachers were asked to list three challenges (or problems) that they may have encountered with ESL students in their program. In the second part of the survey, CTE teachers and support personnel were asked to comment on "successful experiences" when working with ESL students. Responses from the first part of the survey were analyzed and summarized into eight categories that emerged from the respondents' comments. A summary of the challenges faced by CTE teachers and support personnel is shown in figure 1. However, it must be noted that the comments given may not be representative of all career and technical education teachers who work with ESL students.

Communication Skills

- ESL students might not express their thoughts and feelings.
- Students will not read aloud or ask questions in class.
- Some students will often fail to make direct eye contact with the teacher.
- Some student seems to "be afraid" to ask for information.

Reading and Writing

- Some ESL students have very poor reading or writing levels or cannot read and write at all.
- Because students cannot read or write, they cannot comprehend, understand, and complete class assignments.
- ESL students who have problems reading and writing, have even more difficulty when dealing with technical information.

Math Skills

- Some students do not understand basic math.
- Some students only understand the metric system.

Self-Image of ESL Students

- Some students appear to have low self-esteem by the way they act.
- Some students seem to "be lost" from the start and are used to being ignored.
- Students do not want to be a problem in class.
- Some students become frustrated, especially when trying to explain something they do not understand.
- Some students may be viewed as "less intelligent" by native English-speaking students, even though they are very intelligent.

Class Participation

- ESL students often feel "left out" and will try to isolate themselves.
- Some students do not want to involve themselves in group discussions or activities.
- Some students may "pretend" (e.g., writing) that they are participating in class activities.
- Some students often reject "help" from other students. This may be due to embarrassment or they may just really not want to try.
- The teacher will often not understand what the student is saying.

Class Instruction

- The teacher is not sure if the student understands the knowledge or skills being taught. Students will tell you that they are "getting it," but after a little investigation or watching them, you know they did not learn what was being taught.
- Many teachers find it difficult to spend lots of time working one on one with ESL students. Working with them takes time away from the rest of the class.
- Students have problems processing information, especially going from a basic to a more advanced level.
- Many of the English-speaking students want to progress faster than the non-English speaking students and let the teacher know this.
- ESL students seem to need more time to complete activities and assignments.

Cultural Differences

- Different cultural backgrounds influence the ways in which students interpret meanings. For example, many American gestures or jokes used in class have no meaning to ESL students.
- The work ethic differs from culture to culture.
- In many cultures, teachers are well respected and these students openly show their appreciation to the teacher.
- One teacher reported having students who were "skilled cheaters," which may be related to their cultural upbringing.

Working in the Trade

- Because ESL students did not understand what they were supposed to do (e.g., in written directions), they wasted materials.
- It is sometime difficult to get ESL students interested in the trade.
- ESL students may be afraid of technical experiences that they have never seen or been exposed to. For example, a student may be afraid of the "fire" when first exposed to welding.

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Figure 1. Challenges faced by career and technical education teachers and support personnel when dealing with ESL students.

The comments from CTE teachers in this survey provide some interesting observations. The major observation deals with the "perception" teachers have of ESL students. Specifically, many teacher comments seem to imply that ESL students are "less than" their non-ESL students. This perception is false. Those who teach ESL students must remember that ESL students are at a disadvantage because they do not know the English language. Being an ESL student does not reflect an individual's intelligence or aptitude.

Many of the comments/challenges expressed by teachers when working with ESL students in this survey are not unique to ESL students—they can apply to all students. For example, in a regular classroom setting, teachers face many challenges. There may be students who have poor communication, reading, and writing skills. Also, teachers may have students who are experiencing problems with math, do not want to participate in class activities, and have low self-esteem.

In this survey, it appears that there may be some challenges faced by CTE teachers that are unique to ESL students. These challenges seem to relate to cultural differences (e.g., respect, motivation, work ethic, and previous experiences), students not speaking for fear of embarrassment, teachers not being able to understand the student speaking, and the extra time ESL students may need to complete activities not written in their native language. When developing instruction for ESL students, CTE teachers should consider the unique challenges that ESL students may present and strive to develop appropriate instruction and learning activities for all students.

Developing Curriculum for ESL Students

To develop effective instruction for all students, including ESL students, it is helpful for career and technical education teachers to have a good working knowledge of the curriculum development process. A curriculum takes content and shapes it into an effective plan for teaching and learning. A curriculum "provides the specific details on how the content is to be delivered" (International Technology Education Association 2000, p. 13). Finch and Crunkilton (1999) provide a good working definition of the term curriculum: "the sum of learning activities and experiences that a student has under the auspices or direction of the school" (p. 11).

A well-written curriculum is typically documented in a curriculum guide that identifies the goals, objectives, and standards that all students are required to achieve. The curriculum may also include required units and lessons, recommended curriculum resource materials, information about student activities, and recommended instruction and assessment strategies. For those teaching ESL students in CTE, a well-written curriculum must be obtained (or developed) and implemented using sound instructional and assessment strategies.

Developing Effective Instruction for ESL Students

Developing effective instruction for ESL students in career and technical education is not a difficult task. It requires basically the same knowledge and skills required of all teachers, including a knowledge of the discipline, an understanding of how students learn, and knowledge about developing and delivering effective instruction.

ESL students enrolled in career and technical education programs come from a wide range of cultures and backgrounds that shape behavior, including thoughts and feelings. As Bott (1998) notes, "Culture is learned and shared by people and it determines what values and behaviors are exhibited" (p. 56). Therefore, it is very helpful for CTE teachers to learn about the various cultures that students bring to the classroom. It helps them become more sensitive to students' needs and to the behaviors that students may exhibit.

Equity for ESL Students

When teaching career and technical education students from various cultural backgrounds, Sheppard and Vaughn (1979) recommend that teachers become familiar with the language of the students. Language is an integral part of a student's personality and teachers who learn and sometimes speak a student's language, even at a basic level, will find the ESL student becoming more responsive in the teaching and learning environment. However, CTE teachers must still stress the importance of learning the correct English language, including important technical terms. Also, teachers should be aware that most languages have diversities within themselves. For example, there are many "types" of Spanish language and dialects spoken that contain many indigenous words and interpretations.

All students, including ESL students, possess a wide range of learning styles and preferences for learning. Effective CTE teachers know about learning styles and will try to develop teaching and learning situations to meet all students' needs. However, because of their language difficulties, some ESL students may be considered at risk of failing to achieve their academic potential.

CTE teachers who work with ESL students must remember that for most students, it is very difficult for them to learn and communicate when placed in situations where their native language is not used. Consequently, social and behavior problems may result (Bliese 2001). Teachers also must remember that in addition to poor communication skills, some ESL students may also possess poor learning skills.

Also, CTE teachers must strive to develop sound instruction using a variety of teaching methods and approaches. Using a variety of teaching methods and approaches helps to motivate students and accommodate their diverse learning styles. In the second part of the survey conducted for this monograph, career and technical education teachers and support personnel were asked to comment on "successful experiences" when working with ESL students. Specifically, the question asked CTE teachers and support personnel to share successful teaching strategies or ideas that worked when dealing with ESL students. Responses from this question, along with the author's own experiences, were analyzed and summarized and placed into the Four-Step Method of Teaching shown in figure 2.

The Four-Step Method of Teaching is a simple and effective method for teaching made up of four key processes: preparation, presentation, application, and evaluation. In step one, the teacher prepares the materials needed for the teaching and learning of the lesson. In step two, the teacher presents the materials prepared in step one. In step three, students have the opportunity to practice and apply what they have learned. In the last step, the teacher and student determine how much learning has taken place (Edmunds and Smith, 2001). As Edmunds and Smith note, "One of the most successful teaching methodologies is far from innovative, new or gimmicky. In fact, it is quite old and traditional. Yet, it has one redeeming quality—it works" (p.18).

Step 1: Preparation

- Get to know the students. Talk informally with them. Ask them about their culture, family, country, etc.
- Learn about the student's culture and their previous educational experiences. Remember, in some cultures, students are "expected" to remain quiet in their classes.
- Try to learn a few words in the student's native language.
- Prepare class notes and other activities and give them prior to the class lesson so that students can review them. Make students responsible for being prepared before coming to class. For example, they could be responsible for identifying and defining five new words that they did not previously know.
- Motivate students by asking them "what if" questions or by showing them something unfamiliar and asking them to "think" about what it is.
- Find students who like to serve as mentors to help ESL students.
- Work with the ESL teacher and have them help you in the planning of your lessons. Remember, most ESL students are enrolled in classes that are teaching them basic reading, writing, and speaking skills.
- Show your enthusiasm and desire for all students to learn. Show you care!

Step 2: Presentation

- Speak slowly and clearly. Avoid using slang and sayings with abstract meanings (e.g., "I want you to start thinking outside the box").
- Begin class by reviewing and defining key terms. Write key words on the board and ask students to look them up.
- Have students "say and spell" a new word or concept they are trying to learn and then have them write it on the board. It makes ESL students feel like they are part of the class.
- Use graphics (e.g., overhead transparencies and pictures) when presenting materials.
- Use labels so that students can begin to learn rules, safety, and the names of tools, materials, and equipment.
- Teach one concept at a time and build on previously learned concepts.
- Whenever possible, work with students in a one-on-one situation.
- Try to find and use written materials that are written at a basic level or materials that are bilingual.
- If possible, develop lessons that include references to the student's culture (e.g., achievements of Hispanic inventors).
- Encourage students to talk, ask questions, and express their ideas. Let them know you are there to help them.
- Have another student who is bilingual in the class explain or read the materials to the student in a one-on-one situation. For this to work, the ESL student must be willing and the other student must learn to be patient.
- Use an interpreter.
- Read with students.
- Have a bilingual dictionary handy or translation software that students can use.

Step 3: Application

- Keep instructions or directions simple (e.g., show step-by-step procedures).
- Use student mentors. Pair them up with other students who are bilingual. Make sure the bilingual student has a good grasp of the native language and English.
- Demonstrate hands-on activities and then have the student work with the teacher as they complete the activity.

Step 4: Evaluation

- Continually ask and probe to see if students really understand the materials being covered or the assigned activity.
- Continually assess students to determine their levels of English speaking, reading, writing, and math abilities. Modify your own teaching to meet their needs.
- Be fair and consistent.
- Require ESL students to meet the same standards as required for the class.
- Use take-home exams that provide students more time to complete.

Figure 2. Helpful suggestions when teaching ESL students in career and technical education using the Four-Step Teaching Method

Equity for ESL Students

To develop effective instruction in career and technical education, CTE teachers should follow the suggestions presented in figure 2. The suggestions and strategies presented here are very similar to those recommended by Sarkees and Scott (1986) in their section dealing with individuals with limited English proficiency (pp. 64-65) and by Orlich, Harder, Callahan, and Gibson (1998) in their section dealing with second-language immersion (pp. 334-335).

Career and technical education teachers are also encouraged to seek assistance when working with ESL students. Most schools have an ESL teacher or resource person who can assist them as they develop instruction for their program. Teachers are also strongly encouraged to use the Internet to search for helpful information and resources. For example, using the Internet, a CTE teacher can research a student's culture or find a helpful online translation dictionary. Finally, teachers are encouraged to use a variety of instructional technologies in the classroom. For example, presentations and demonstrations can be enhanced by using well-prepared overhead transparencies or by using electronic presentations (e.g., PowerPoint) that contain both written and graphic information, including some bilingual references.

All students, including those immigrants with limited English skills who enroll in career and technical education programs, are entitled to high-quality training and education programs. Those who teach in career and technical education must strive to develop effective education and training for all students, including ESL students.

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